

NEW SPECIES AND NEW RECORDS OF MARINE MOLLUSCA FROM AUSTRALIA

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A number of interesting specimens belonging to several groups of marine molluscs have come to hand at the Australian Museum during recent months, some representing new range records, others new species, and for one of the latter, a new genus is necessary.

CLASS BIVALVIA (= PELECYPODA)

FAMILY GARIIDAE

Psammotaea crassula (Deshayes)

(Pl. 4, figs. 1-3.)

Capsa (*Capsella*) *crassula* Deshayes, 1855, Proc. Zool. Soc. London, 1854, p. 349. Reeve, 1857, Conch. Icon., 10, *Capsella*, pl. 2, sp. & fig. 8.

Remarks: While excavating an aboriginal campsite in the Clarence River district near Grafton, N.S.W., Dr. M. L. Ryder of New England University, Armidale, found numerous buried animal remains which were submitted to the Australian Museum for identification. Among them were some mollusca, mostly common species of bivalves from New South Wales still living in the vicinity, but several specimens of a bivalve attracted attention. They were obviously members of the family Gariidae (alternately known as Sanguinolariidae or Psammobiidae) but could not be assigned to any recorded Australian species. However comparison with specimens in the collection revealed two shells from the Clarence River, collected by Brazier and obviously living or recently dead specimens when found, which have been overlooked by later workers on the Museum collection.

Brazier had identified the shells as *Capsella crassula* Deshayes, a species described from the Philippines and figured by Reeve; comparison with the figure shows that the Clarence River shells are very similar and they agree well with the description. No dimensions are given by either Deshayes or Reeve, but assuming that Reeve's figure is natural size, the Brazier shells are a little larger, while the campsite shells are about the same size as the type. A somewhat similar species was described by Bertin (1880) as *Hiatula* (*Psammotaea*) *complanata* (p. 100, pl. 5, fig. 3) from unknown locality. This shell is somewhat more slender than the Clarence River specimens, but otherwise agrees closely.

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PLATE 4—Continued.

- Fig. 4: *Laticaxis mawae* (Griffith & Pidgeon). 118 fm., off Cape Moreton, Queensland. Aust. Mus. C. 63357. Mag. XI
- Fig. 5: *Laticaxis mawae* (Griffith & Pidgeon). Hong Kong. Aust. Mus. C. 38738. Mag. XI
- Fig. 6: *Pterynotus patagiatus* (Hedley). Keppel Bay, Queensland. Aust. Mus. C. 63358. Mag. XI
- Fig. 7: *Pterynotus patagiatus* (Hedley). Dredged between Bowen and Townsville, Queensland. T. Garrard Collection. Mag. XI
- Fig. 8: *Aulicina vespertilio* (Linne). Bathurst Island, Northern Territory. Aust. Mus. C. 63359. Mag. XI½
- Figs. 9, 10: *Pseudocymbiola provocacionis* McMichael. Holotype. Trawled off Ulladulla, N.S.W. Aust. Mus. C. 63182. Mag. XI

The generic name to be used for the species is somewhat doubtful. *Capsella* Deshayes was introduced for a number of similar species, but is preoccupied. Most authors have used *Psammotaea* Lamarck, introduced for eight species in the *Histoire Naturelle*, without designated type species. Dall (1900) reviewing the taxonomy of this group regarded Bowditch (1822) as the first type designator by virtue of the citation of *Psammotaea serotina* Lamarck as example; this would make *Psammotaea* available for the present species and is the accepted usage. However it seems doubtful whether such citations qualify as valid type designations today. The next available is that of Children (1823) who selected quite a different species (*Psammotaea donacina* Lamarck) as type. I am not convinced that the latter is congeneric with *crassula* Deshayes, but for the time being the present species can be left in *Psammotaea*.

CLASS GASTROPODA

FAMILY CORALLIOPHILIDAE

Latiaxis mawae (Griffith & Pidgeon)*

(Pl. 4, figs. 4, 5.)

Pyrua mawae Griffith & Pidgeon, 1834, *Cuvier's Animal Kingdom*, 12, pl. 25, figs 3, 4, p. 599.

Latiaxis mawae. Swainson, 1840, *Treatise on Malacology*, pp. 82, 306.
Kira, 1955, *Coloured Illustrations of the Shells of Japan*, pl. 25, fig. 26.

Remarks: The occurrence of this well known species on the eastern Australian coast is astounding, in view of the restricted distribution which the species was previously thought to enjoy. A single, dead and somewhat worn specimen was received from Mr. W. Lillistone of Brisbane, who kindly presented it to the Australian Museum. It was dredged in 110 fathoms, off Cape Moreton, and probably was collected by m.v. "Challenge". The shell compares well with Japanese specimens of *L. mawae* in the Australian Museum collection, though the photograph on plate 4, fig. 4 will show that it differs somewhat in the descent of the whorls, when compared with a typical Japanese shell (pl. 4, fig. 5), though there is some variation in this feature among Japanese specimens. The angle of protrusion of the encircling flat spines at the shoulder of the whorl is different in the Australian specimen, being more-or-less horizontal (if the shell be held with the axis vertical) whereas the Japanese shells nearly always have the spines curling upwards. However, these differences are not sufficient to warrant specific separation of the Australian shell in view of its otherwise close resemblance to *Latiaxis mawae*. (It should be pointed out that the differences between the Japanese coralliophilid *Tolema lischkeana* (Dunker) and the Australian *Tolema australis* Laseron, are much the same as those indicated above, especially the angle of protrusion of the shoulder spines from the body whorl.)

*Two live specimens of this species were dredged in Western Australian waters by the Hawaiian-West Australian Expedition in June, 1960.

The generic allocation of species of the family Coralliophilidae is not satisfactory at present and much revision is necessary. However the present species, being the type species of *Latiaxis* is correctly located therein.

FAMILY MURICIDAE

Pterynotus patagiatus (Hedley)

(Pl. 4, figs. 6, 7.)

Murex patagiatus Hedley, 1912, Rec. Aust. Mus., 8, p. 151, pl. 43, fig. 36.

Remarks: This lovely muricid has been found in numbers during recent years by trawling and dredging at various localities in Queensland. Its determination proved difficult, as it resembled a miniature species of the "*pinnatus*" group but did not match any known Queensland or tropical species. However, comparison with the species described by Hedley from New South Wales as *Murex patagiatus*, revealed a very close affinity; the southern shell is almost completely lacking in the foliated expansion of the varices, characteristic of the northern specimens, but otherwise the two forms are almost identical. When naming *patagiatus*, Hedley referred to a couple of specimens, rather beachworn, from Ballina, north New South Wales, but selected as holotype a shell from Sydney Harbour, dredged by Brazier. Study of the type series in the Australian Museum shows that the two beachworn shells are not the same species as the holotype, but are in fact worn specimens of *Torvamurex denudatus*. A few specimens of *patagiatus* from Queensland (Lindeman Island, North West and Masthead Islands) were located in the Australian Museum collection, but these were all dredged and imperfect specimens. A pair of clean, live shells were sent by Mr. and Mrs. R. Brown, of Yeppoon, Queensland, to Mr. T. Garrard, who passed them on to the Museum for identification. They differ slightly from the holotype in having a somewhat more elongate shell, with the foliate varices very well developed and with a longer siphonal canal. However the type of *M. patagiatus* is a dead shell, and while it lacks the well developed foliation of the varices, these could have been worn away. It is however a more squat shell, but without additional material from New South Wales it is not possible to separate the two forms. Conceivably the Queensland shells could represent a northern subspecies, but for the time being they are referred to *patagiatus*. The Keppel Bay shells are pinkish white in colour, but specimens from further North, dredged between Bowen and Townsville are a bright orange-pink between the varices.

The generic name to be used for the species is apparently *Pterynotus* Swainson (type species *pinnatus* Swainson) and *patagiatus* Hedley has many affinities with the type. Generic divisions in the Muricidae are far from well established however and the name is used with some reservation as there seems to be almost continuous variation in this family from genus to genus. Hedley compared his species with *Murex denudatus*, but the comparison was probably the result of his having confused two worn specimens of that species with his new species. In fact *Murex denudatus* is in no way similar to the present form.

FAMILY VOLUTIDAE

Aulicina vespertilio (Linne)

(Pl. 4, fig. 8.)

Voluta vespertilio Linne, 1758, Syst. Nat., Ed. 10, p. 733, Vermes Testacea sp. 371. Reeve, 1849, Conch. Icon., 6, *Voluta*, pl. 5, sp. & fig. 11.

Remarks: The range of this species has till now been known to extend from the Philippines through the eastern Islands of Indonesia to the north coast of New Guinea, but to my knowledge it has never been recorded from the southern coast of New Guinea and certainly not from Australia. Specimens are now to hand from Bathurst Island, off the north-west tip of Arnhem Land, collected by Mr. C. F. Kurtze of Portland, Victoria, and presented to this Museum by Mrs. D. I. Hartley. At first sight, the shells appear to differ somewhat from normal populations of the species, but comparison with the figures in Reeve show that they agree closely in form with shells figured by Reeve as "typical" *vespertilio*, differing only in coloration, which in the Bathurst Island shells is uniformly streaked longitudinally with dark brown on a cream shell.

PSEUDOCYMBIOLA gen. nov.

Type Species: *Pseudocymbiola provocationis* sp. nov.

Remarks: Among some shells collected by m.v. "Challenge" off the south coast of New South Wales were a couple of volutes which at first sight, resembled discoloured specimens of some form of *Cymbiolacca*. However closer examination revealed that they had nothing whatever to do with *Cymbiolacca*, differing in the structure of the protoconch. One shell was obtained from the master of "Challenge", Mr. Evans Paddon, and the other from Mr. T. Garrard who kindly handed their shells to me for description. The relationship of these two shells is seen at once when a number of Tertiary species of volutes from southern Australia are studied. These species, including the forms described as *Voluta weldi* Tenison-Woods, *Voluta strophodon* McCoy and *Voluta strophodon brevispira* Pritchard (but not necessarily all the species listed by Cotton (1949) as *Cymbiola*) show a close resemblance to the present species in general form and more particularly in the protoconch which is comparatively small, hemispherical, white, quite smooth, of about 2½ whorls and merges without a break into the juvenile whorls.

In body form the shells fall into the general volutid pattern of moderately long spire, spinose shouldered whorls, several strong columellar plaits and a well developed basal fasciole. The generic name adopted above indicates that in some general features these shells recall members of the genus *Cymbiola* s.l. but the latter group has a flattened, ribbed protoconch and the shells are generally much larger species.

It would appear that the new, living species to be described below, is the present-day derivative of the Tertiary *strophodon* group, which probably represents an old Australian element in the Tertiary fauna, whereas the genus *Cymbiola* (and *Aulica* which is often grouped with it) probably is part of the Tethyan element in our fauna, from which most of the present Indo-Pacific tropical species derive.

Pseudocymbiola provocationis sp. nov.

(Pl. 4, figs. 9, 10.)

Description: Shell of medium size, maximum length 45 mm., maximum diameter 22 mm., spire elevated, body whorl large, aperture 32 mm. in length. Protoconch comparatively large, rounded, creamish-white, of $2\frac{1}{2}$ whorls, with faint, spiral striations, merging imperceptibly into the adult whorls which number $3\frac{1}{2}$. Spire slightly nodulose, the nodules increasing in size on the penultimate whorl and fully developed on the body whorl, where they form a crown at the shoulder of the whorl; nodules sharply pointed, outstanding, numbering from five to seven on the body whorl. Colour of shell orange-fawn, with faintly orange patches clouding the spire and body whorl and a few scattered dots of orange brown, mostly obscure, with a series of short, vertical, orange-brown lines below the suture, spaced about one mm. apart and scarcely one mm. in length. Aperture white in colour, with a thin white opaque callus across the inner lip and continuing onto the basal fasciole. Four strong columellar plications.

Types: The holotype is the larger of the two specimens available, and was trawled off Ulladulla, N.S.W. It is in the Australian Museum, Registered No. C. 63182. A paratype from off Port Kembla, N.S.W., has been presented to the National Museum of Victoria, Melbourne.

Paramoria weaveri sp. nov.

(Pl. 5, top figs.)

Remarks: The following new species was collected last year by the Hawaiian-Western Australian expedition which carried out dredging operations along the southern half of the Western Australian coast during May and June, 1960, in the yacht "Davina". It is proposed to report fully on the collections of Volutidae made by the expedition at a later date, but the present species is of particular interest and I have been asked to expedite its description. The shell was tentatively identified as *Nannamoria guntheri* (Smith) but comparison with specimens in the Australian Museum and study of the original description and figure show that it is quite a different species. The new form is small, but apparently adult and resembles *guntheri* in shape, though the spire is more depressed and the whorls more shouldered. The colour pattern is of a generally similar type, but the arrangement of the chestnut lines is distinctive. For these reasons, it is described as a new species of the genus *Paramoria* McMichael, recently proposed by me for *guntheri* Smith, (*Journ. Malacol. Soc. Australia*, 4, p. 12).

Description: Shell small, 27 mm. maximum length, 14.5 mm. maximum diameter, aperture 24 mm. in length. Body whorl large, spire short, whorls shouldered and sharply nodulose, aperture gaping, inner lip with four columellar plaits. Protoconch comparatively large, of $3\frac{1}{2}$ whorls, quite smooth, pale fawn in colour with the exception of a narrow band of white encircling the protoconch whorls just below the suture. Adult whorls $2\frac{1}{2}$, pinkish cream, longitudinally striped with fine chestnut-brown lines; most of the lines not continuous, but breaking off abruptly and replaced by lines which run parallel to them for short distances; a few lines continuous from top to bottom however. Lines clumped together at intervals and thickened, giving an impression of a series of blotches of colour, occurring in two bands encircling the shell, one about 5 mm. below shoulder, the

other some 10 mm. below that. Whorls shouldered, becoming nodulose, the nodules sharply pointed, but not produced into spines, numbering 9 or 10 on the body whorl.

Animal with a broadly expanding foot, cream to yellowish in colour, brilliantly patterned with a lattice of orange lines and reticulations.



—Block by courtesy of the Royal Zoological Society of New South Wales.

PLATE 5.

Top three figures: *Paramoria weaveri* McMichael. Holotype. Bishop Museum No. 213874.

Bottom two figures: *Paramoria guntheri* (Smith). Encounter Bay, South Australia. Australian Museum No. C. 62111.

Proboscis banded with orange; tentacles and lateral lobes of head crossed by fine brown lines. In alcohol, all colours faded, except the brown lines on the tentacles and head lobes. Siphon short, with comparatively long appendages, which are expanded distally. Tentacles long, with broad lobes beside them, the eyes prominent at the bases of the tentacles. Fleishy hood above the proboscis white, its margin fimbriated. Radula uniserial, with about 205 Y-shaped teeth, each approximately 0.158 mm. by 0.105 mm., the arms of the Y long and slender, the cusps short, slender and sharply tapering.

Type Locality: Zecwyck Channel, Abrolhos Islands, dredged in 80 fathoms, 12th May, 1960.

Types: The unique holotype, including the dissected animal and radula slide, is in the Bernice P. Bishop Museum, Honolulu, Catalogue No. 213874.

Additional Remarks: The species is named for Mr. Clifton Weaver, President of the Hawaiian Malacological Society who collected the specimen and made the colour notes on the living animal, details of which have been given above.

The shell is in many ways a miniature of *P. guntheri*, (Pl. 5, bottom two figures) but it differs in being markedly smaller, in the more pronounced undulation of the lines and in details of the shape of the shell. These differences are clearly illustrated in the accompanying figures. The presence of a radula in the holotype of *P. weaveri* enables the affinity of the genus *Paramoria* to be determined for the first time. The Y-shaped radular teeth place it in the subfamily Scaphellinae, and it must stand next to *Cymbiolista* Iredale and *Amoria* Gray.

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